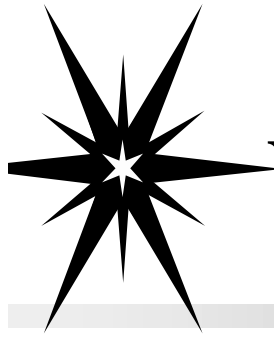


# Corrective Action for Engineers, Scientists and Technicians

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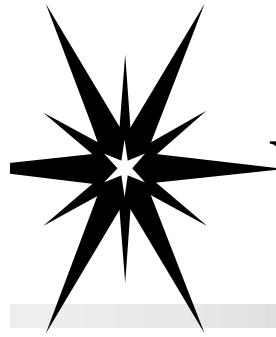
Jeff Spencer/EE24  
544-7498



# Why We Are Here

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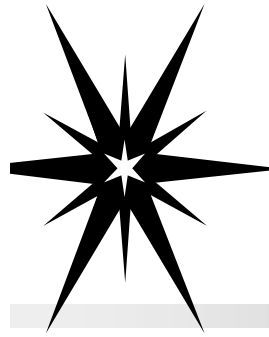
- Corrective action was a focus of the recent JSC registration audit by NQA
- Corrective action procedures were all recently revised or just recently released
- Our registration audit is scheduled for February 25th-27th, 1998



# What I Hope to Accomplish

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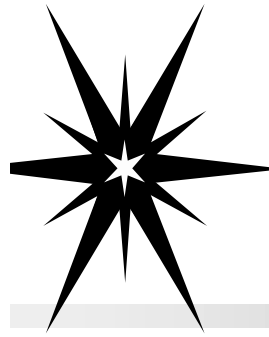
- Corrective Action Lingo
- Corrective Action System Overview
  - New/Revised Procedures
- On-Line QSDN/CAS Demo
- Audit Preparation



# Corrective Action Lingo

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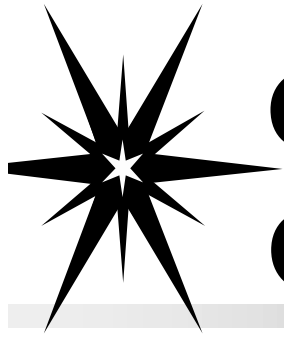
- Nonconformance - A condition in which one or more characteristics do not conform to requirements.
- Root Cause - The underlying reason or cause for a nonconformance.



# Corrective Action Lingo (cont'd)

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- Corrective Action - Action taken to correct a nonconformance and to eliminate the cause to prevent recurrence.
- Preventive Action - Action taken to eliminate the cause of a potential nonconformance in order to prevent occurrence.



# Corrective Action System Overview

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<p>Supplier &amp; Subcontractor Nonconformances or Deficiencies</p>	<p>In-House Hardware or Software Nonconformances</p>
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# Corrective Action System Overview (cont'd)

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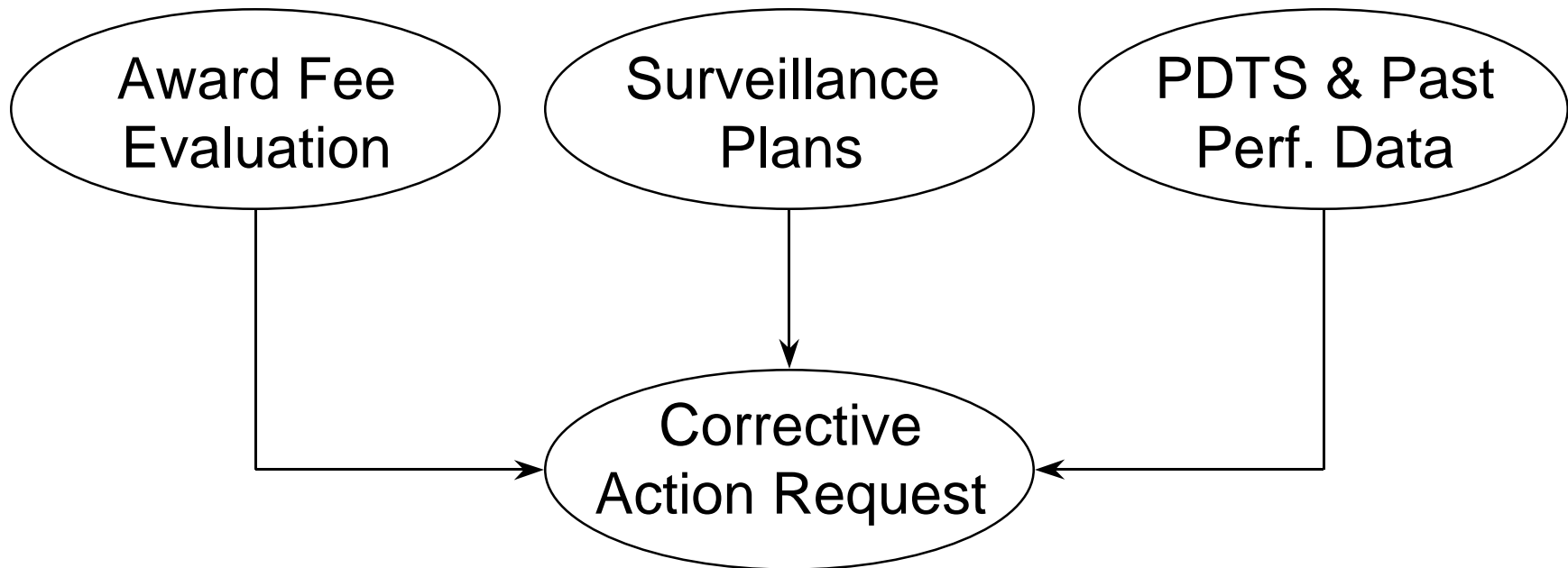
- MSFC-P06.1, Purchasing
- MSFC-P06.1-C03, Procurement Initiator's Guide
- MSFC-P06.1-C04, Evaluation of Contractor Performance for Contracts With Award Fee Provisions



# Corrective Action System Overview (cont'd)

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## Supplier/Subcontractor Nonconformances







# Corrective Action System Overview (cont'd)

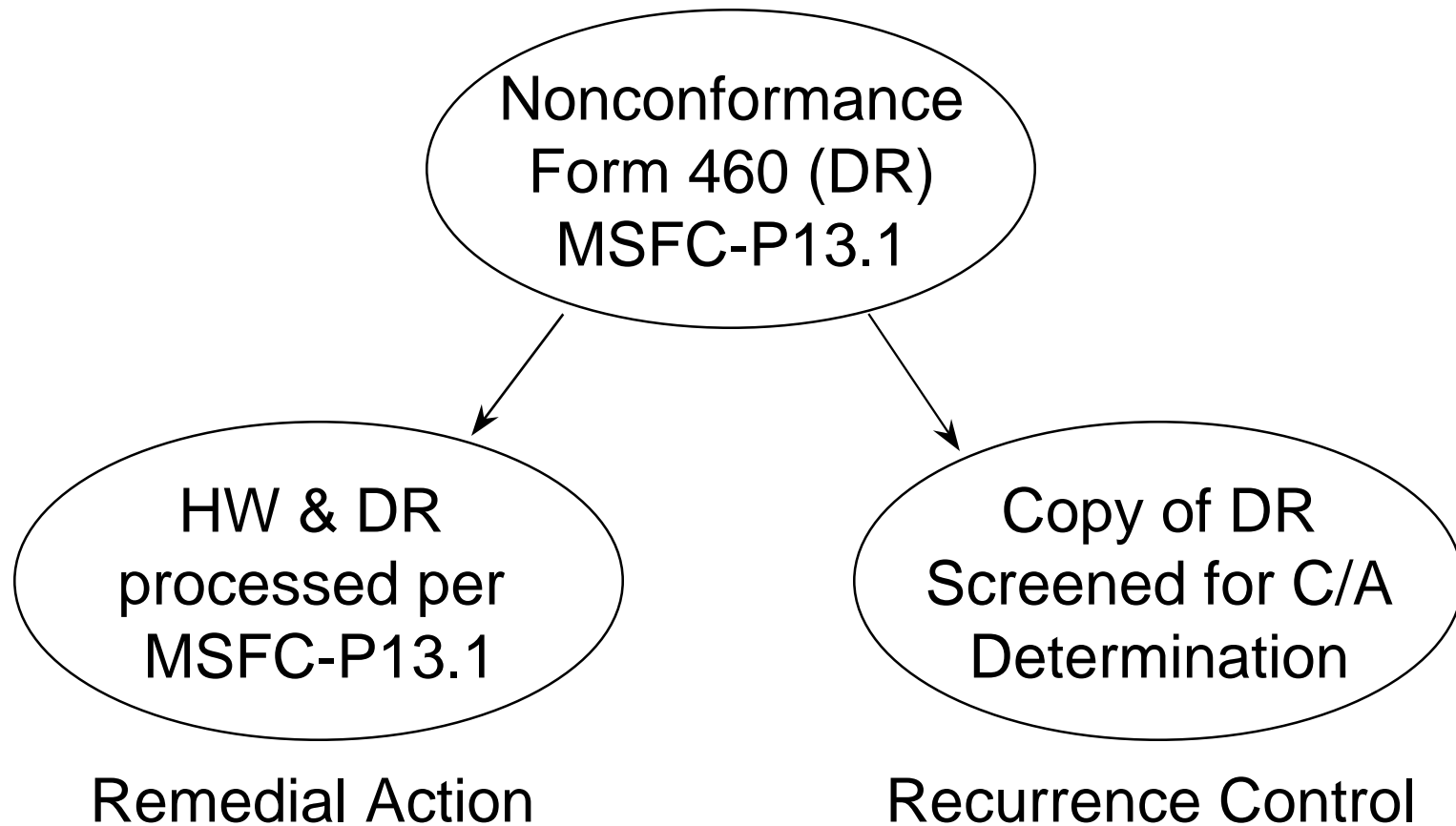
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- MSFC-P14.1, MSFC Corrective Action System, Rev. A approved on 2/3/98
- MSFC-P14.1-C01, MSFC Quality Comment System
- MSFC-P14.1-C02, MSFC Corrective/Preventive Action Notification System
- MSFC-P14.1-C03, MSFC Quality System Deficiency Notice System



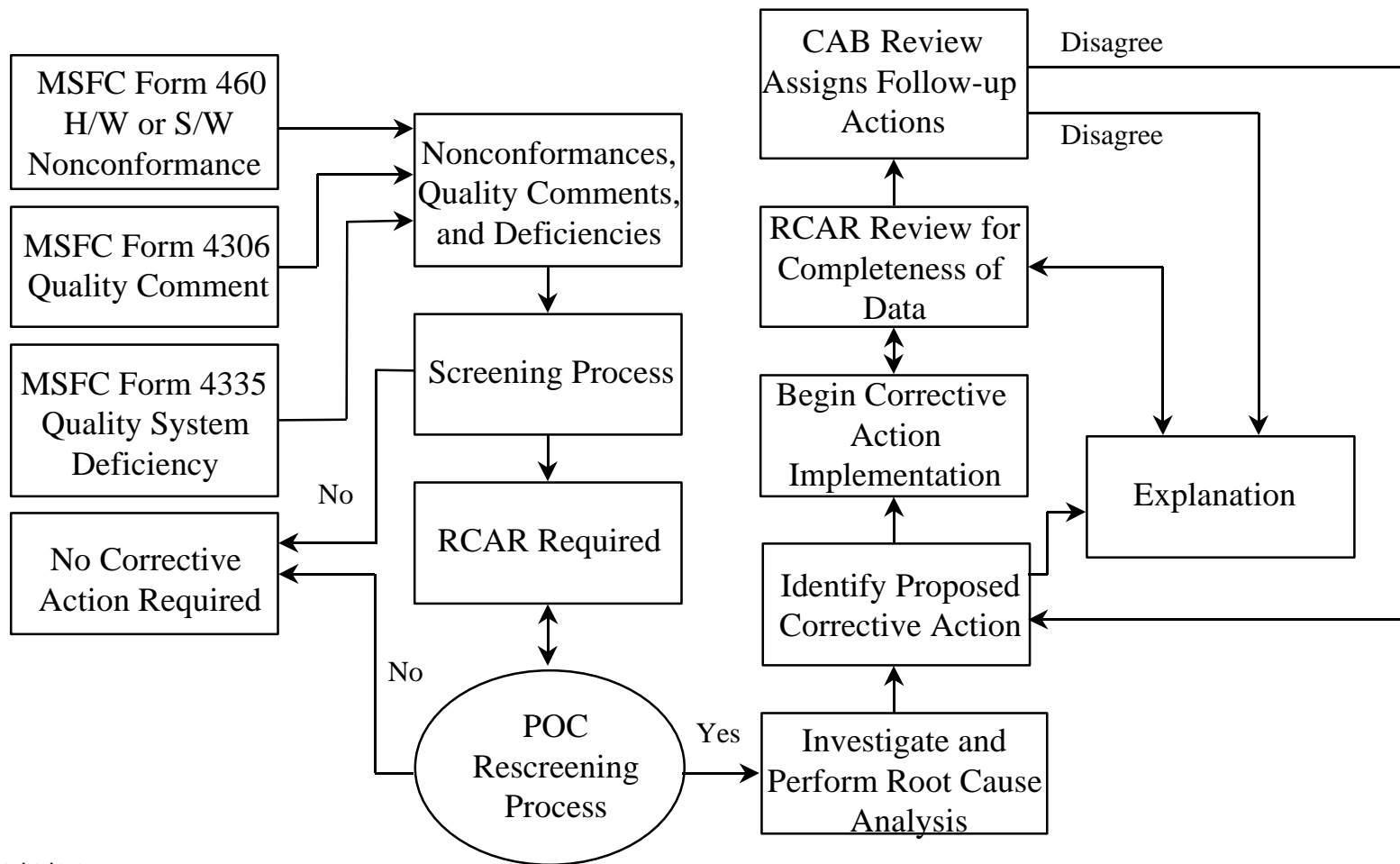
# Corrective Action System Overview (cont'd)

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# Corrective Action System Overview (cont'd)



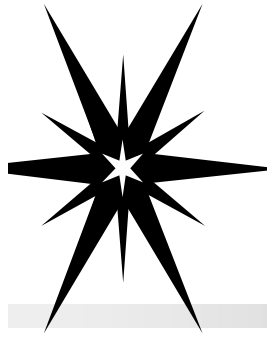


# Screening Criteria - HW/SW Nonconformances (P14.1)

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## No Corrective Action Required

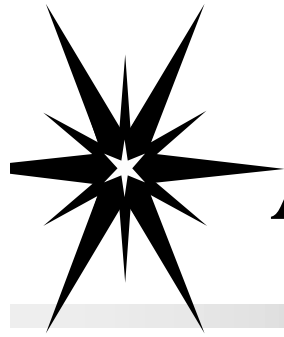
- One time use
- One of a kind unrelated to other flight hw/sw
- Benign condition - no increase in risk or no effect on form, fit, function
- Standard repair in place
- No effect on flight safety, mission performance, reuse or refurbishment



# Root Cause Analysis

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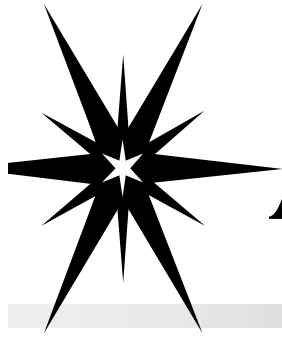
- Who does it? The right, few people
- What is the purpose? Helps differentiate between symptoms of underlying causes and the causes themselves
- When do we do it? Ideally, as soon as you know there is a problem
- Why do we do it? To prevent recurrence



# Audit Preparation

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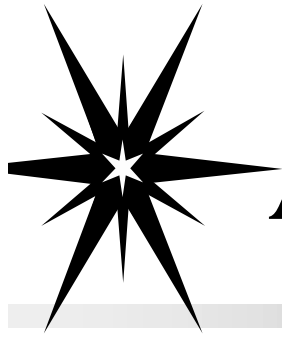
- How Corrective Action is Approached
  - Purchasing/Procurement
  - Interface With External Customers
  - Work Directly with Hardware/Software
  - Administrative Work



# Audit Preparation (cont'd)

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- Purchasing/Procurement
  - How do you measure the performance of your suppliers and request corrective action for problems?
    - MSFC-P06.1, MSFC-P06.1-C03, MSFC-P06.1-C04
    - Know which apply to your work
    - Know how to access and verify they're current

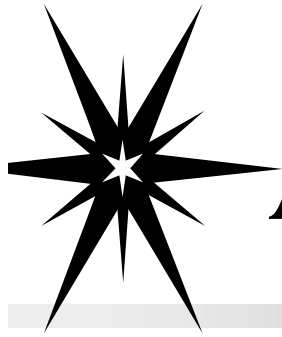


# Audit Preparation (cont'd)

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- Interface with External Customers
  - How can customers file a complaint about a delivered product or service?
    - MSFC-P14.1-C01
    - Know how to access the CWI and Form 4306
    - Form included along with delivered products
    - For calls and letters, form to be completed by recipient and sent to S&MA

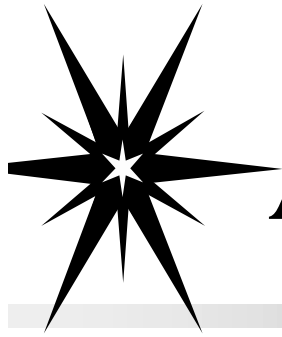




# Audit Preparation (cont'd)

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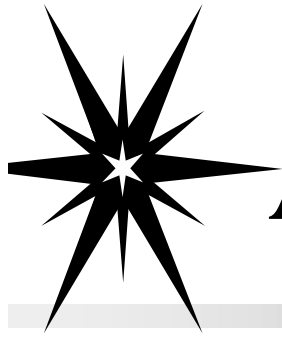
- Work Directly with H/W or S/W
  - What is your process for corrective action?
    - The MSFC process for corrective action of hardware or software nonconformances is defined in MSFC-P14.1
    - The MSFC process for corrective action for design nonconformances (prior to hardware fab) is defined in MSFC-P04.1. MSFC conducts design reviews and documents design deficiencies on Review Item Discrepancies (RIDs)



# Audit Preparation (cont'd)

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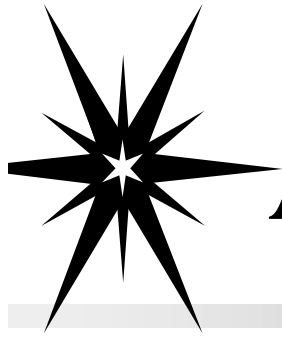
- Work Directly with Hardware or Software
  - How do you know when to take corrective action?
    - MSFC-P14.1 contains screening criteria which helps determine which hardware/software nonconformances require corrective action. Nonconformances are screened by S&MA and the responsible project/organization. In general, risk and cost-effectiveness are primary considerations



# Audit Preparation (cont'd)

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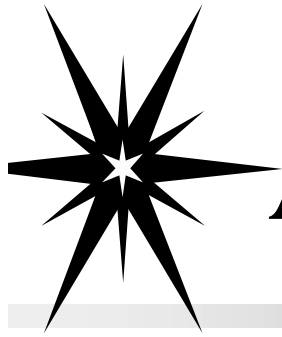
- Work Directly with Hardware or Software
  - How do you verify the effectiveness of corrective action?
    - Per MSFC-P14.1, the CAB assigns actions to assure implementation of corrective action and to assure effectiveness (e.g., monitor next 3 parts through process to verify the fix)
    - For RIDs, it would depend on the issue. You might not be able to assess effectiveness until testing



# Audit Preparation (cont'd)

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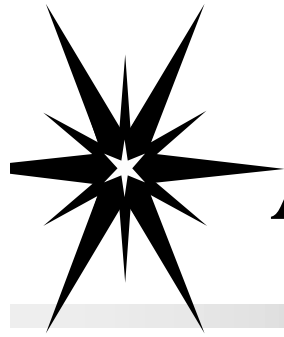
- Administrative Type Work
  - If you find something wrong, how do you correct it?
    - If a Quality System deficiency: Generate a QSDN (Be prepared to demonstrate that you know how to access the system)
    - If a document problem: Identify correction and forward to document OPR



# Audit Preparation (cont'd)

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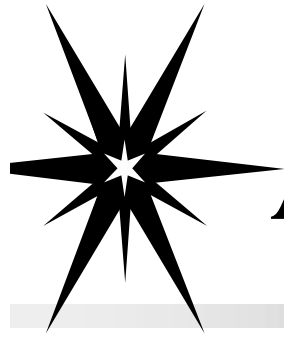
- Administrative Type Work (cont'd)
  - If you find something wrong, how do you correct it?
    - If you're not sure: Contact Organization's ISO Representative (list is maintained on the MSFC ISO 9000 Homepage <http://iso9000.msfc.nasa.gov:9001>) or as a last resort refer the auditor to your supervisor



# Audit Preparation (cont'd)

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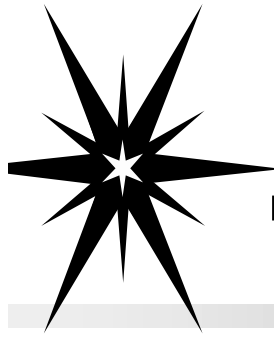
- Audit Do's
  - Be Honest, Concise
  - Listen and Answer the Questions
  - Be Factual, Polite and Cooperative
  - Understand the Procedures/Instructions that Apply to You



# Audit Preparation (cont'd)

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- Audit Don'ts
  - Make Up an Answer
  - Be Argumentative or Negative
  - Be Afraid to Say "I Don't Know, But I'll Find Out"
  - Guess



# Summary

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- The registration audit begins on Feb. 25th
- The key to our success is for each of us to understand how the work we do fits into ISO - if you understand that, the audit will be a breeze
- Jeff Spencer/EE24, ext. 4-7498